

WHAT IS CLAIMED IS:

1. A composition comprising a *Bacillus* species in a pharmaceutically acceptable carrier suitable for topical application to skin or a mucous membrane of a mammal.

5 2. The composition of Claim 1, wherein the *Bacillus* species is included in the composition in the form of spores.

3. The composition of Claim 1, wherein the *Bacillus* species is included in the composition in the form of a dried cell mass.

10 4. The composition of Claim 1 wherein said *Bacillus* species is selected from the group consisting of *Bacillus coagulans*, *Bacillus subtilis*, *Bacillus laterosporus* and *Bacillus laevolacticus*.

5. The composition of Claim 1 wherein said composition comprises contains 10^3 to 10^{12} viable bacterium or spore per gram of composition.

15 6. The composition of Claim 1 further comprising an effective amount of a fructo-oligosaccharide (FOS).

7. The composition of Claim 6 wherein said FOS is present in an amount of from about 10 to 1000 milligrams per gram of composition.

8. The composition of Claim 6 wherein said FOS is present in an amount of from about 100 to 500 milligrams per gram of composition.

20 9. The composition of Claim 1, wherein the carrier is an emulsion, cream, lotion, gel, oil, ointment, suspension, aerosol spray, powder, aerosol powder or semi-solid formulation.

25 10. A composition comprising an extracellular product of a *Bacillus coagulans* strain in a pharmaceutically acceptable carrier suitable for topical application to skin or a mucous membrane of a mammal.

11. The composition of Claim 10, wherein the extracellular product is a supernatant or filtrate of a culture of a *Bacillus coagulans* strain.

12. The composition of Claim 10, wherein the carrier is an emulsion, cream, lotion, gel, oil, ointment, suspension, aerosol spray, powder, aerosol powder or semi-solid formulation.

13. The composition of Claim 10 which further comprises about 1-75 % emu oil by weight.

14. A method of preventing bacterial, yeast, fungal or viral infection comprising:

applying topically to skin or a mucous membrane of a mammal a probiotic composition comprising a *Bacillus* species; and

allowing the *Bacillus* species to grow topically for sufficient time to inhibit growth of bacteria, yeast, fungus or virus.

15. The method of Claim 14, further comprising the steps of providing spores of the *Bacillus* species in the probiotic composition, and allowing the spores to germinate after the applying step.

16. The method of Claim 14 wherein said *Bacillus* species is selected from the group consisting of *Bacillus coagulans*, *Bacillus subtilis*, *Bacillus laterosporus* and *Bacillus laevolacticus*.

17. The method of Claim 14 wherein said composition comprises contains 10^3 to 10^{12} viable bacterium or spore per gram of composition.

18. The method of claim 14 wherein said administering comprises applying from 10^8 to 10^{10} viable bacterium or spore per day.

19. The method of claim 14 wherein said administering comprises applying from 5×10^8 to 10^9 viable bacterium or spore per day.

20. The method of Claim 14 further comprising an effective amount of a fructo-oligosaccharide (FOS).

21. The method of Claim 20 wherein said FOS is present in an amount of from about 10 to 1000 milligrams per gram of composition.

22. The method of Claim 20 wherein said FOS is present in an amount of from about 100 to 500 milligrams per gram of composition.

23. The method of Claim 14, wherein the step of allowing the *Bacillus* species to grow inhibits growth of one or more microbes selected from the group consisting of *Staphylococcus* species, *Pseudomonas* species, *Escherichia coli*, *Proteus* species, *Klebsiella* species, *Candida* species and *Trichophyton* species.

5 24. The method of Claim 14, wherein the applying step comprises applying a probiotic composition in the form of a cream, lotion, gel, oil, ointment, suspension, aerosol spray, powder, aerosol powder or semi-solid formulation.

10 25. A method of inhibiting growth of bacteria, yeast, fungus, virus or a combination thereof, comprising:

applying topically to skin or a mucous membrane a composition comprising an extracellular product of a *Bacillus coagulans* strain; and

allowing the composition to be present for sufficient time to inhibit growth of bacteria, yeast, fungus, virus or any combination thereof.

15 26. The method of Claim 25, wherein the applying step comprises applying the composition in the form of a cream, lotion, gel, oil, ointment, suspension, aerosol spray, powder, aerosol powder or semi-solid formulation.

20 27. The method of claim 25 wherein said composition further comprises about 1-75 % emu oil by weight.

28. An article of manufacture comprising a flexible article and an effective amount of a *Bacillus* species applied to said flexible article, wherein said flexible article is intended to be worn by or attached to skin or a mucous membrane of a mammal to allow probiotic activity of the isolated *Bacillus* species to occur adjacent to or on the skin or mucous membrane.

25 29. The article of manufacture of Claim 28 wherein said *Bacillus* species is selected from the group consisting of *Bacillus coagulans*, *Bacillus subtilis*, *Bacillus laterosporus* and *Bacillus laevolacticus*.

30. The article of manufacture of Claim 28 wherein said effective amount is about 10^3 to 10^{12} viable bacterium or spore per article.

31. The article of manufacture of Claim 28 further comprising an effective amount of a fructo-oligosaccharide (FOS).

5 32. The article of manufacture of Claim 31 wherein said FOS is present in an amount of from about 10 to 1000 milligrams per article.

33. The article of manufacture of Claim 28 wherein said article is selected from the group consisting of a bandage, a tampon, a feminine hygiene napkin, or an article of clothing.

10 34. A method of inhibiting growth of bacteria, yeast, fungus, virus or any combination thereof, comprising:

applying a composition comprising a *Bacillus* species to a solid surface;
contacting the solid surface with the applied *Bacillus* species thereon to

15 skin or a mucous membrane of a mammal; and

allowing the solid surface to contact the skin or mucous membrane for sufficient time to allow initiation of probiotic activity of the isolated *Bacillus* species to inhibit growth of bacteria, yeast, fungus, virus or a combination thereof adjacent to or on the skin or mucous membrane.

20 35. The method of Claim 34, wherein the solid surface comprises a flexible article selected from the group consisting of a diaper, pliable material for wiping skin or a mucous membrane, dermal patch, adhesive tape, absorbent pad, tampon or article of clothing.

25 36. The method of Claim 34, wherein the applying step comprises impregnating the composition into a fibrous or nonfibrous solid matrix.

37. The method of Claim 34, wherein the *Bacillus* species is included in the composition in the form of spores.

38. The method of Claim 34, wherein the *Bacillus* species is included in the composition in the form of a dried cell mass.

39. The method of Claim 34 wherein said *Bacillus* species is selected from the group consisting of *Bacillus coagulans*, *Bacillus subtilis*, *Bacillus laterosporus* and *Bacillus laevolacticus*.

40. The method of Claim 34 wherein said composition comprises contains 10^3 to 10^{12} viable bacterium or spore per gram of composition.

41. The method of Claim 34 further comprising an effective amount of a fructo-oligosaccharide (FOS).

42. The method of Claim 41 wherein said FOS is present in an amount of from about 10 to 1000 milligrams per gram of composition.

43. The method of Claim 41 wherein said FOS is present in an amount of from about 100 to 500 milligrams per gram of composition.

44. A therapeutic system for inhibiting growth of bacteria, yeast, fungus, virus, or a combination thereof comprising a container comprising a label and a composition comprising *Bacillus* according to Claim 1 wherein said label comprises instructions for use of the composition for inhibiting said growth.